## Remarks/Arguments

Claims 1-24 and 49-71 are pending and at issue in the present application. Claims 1 and 13 have been amended, claims 25-48 have been canceled, and claims 49-71 have been added by the present amendment. Support for the new claims may be found in the specification, for example, at least on pages 5 and 6, and Figure 1. For the reasons presented herein, the applicants traverse all of the pending rejections.

Claims 1 and 13 stand rejected under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement. In accordance with the examiner's suggestion in the Office action, claims 1 and 13 have been amended to remove the limitation "without being heated above ambient room temperature by a heating element," and have been amended to include "consisting of" language instead of "comprising," which "excludes additional elements, such as a heater, from the claimed invention." O.A. pg. 2. Therefore, the reason for the 112 rejection has been obviated and the rejection should be withdrawn, notice of which is requested.

Claim 1 recites an article of manufacture consisting of a housing, a fan mounted to the housing to generate an air stream, and between about 10 ml and about 15 ml of a volatile liquid carried within an enclosed reservoir. The volatile liquid has an evaporation rate between about $5.0 \times 10^{-9}$ and about $10.0 \times 10^{-8}$ meters per second measured with about 30% of the volatile liquid remaining at room temperature, as measured and calculated by drop shape analysis. A wick extends between the volatile liquid and the air stream, wherein about 90% of the volatile liquid evaporates through the wick between within one and two months under ambient conditions at ambient room temperature when the wick is exposed to the surrounding environment.

Claim 13 recites an article of manufacture consisting of a housing, a porous wick associated with the housing, and a preselected volume of volatile liquid enclosed within a reservoir. The volatile liquid has an evaporation rate between about $5.0 \times 10^{-9}$ to about $10.0 \times 10^{-8}$ meters per second measured with about 30% of the volatile liquid remaining at room temperature, as measured and calculated by drop shape analysis. The wick is in fluid communication with the volatile liquid and the surrounding environment, wherein at least 90% of the volatile liquid evaporates within 2 months under ambient conditions at ambient room temperature when the wick is exposed to the surrounding environment.

Claims 1 and 13, and claims 2, 4, 7-11, 13, and 20-21 dependent variously thereon, were also rejected as obvious over Triplett (6,697,571) in view of Levine (6,661,967), and in further view of Demarest (6,361,752). All of references used to reject claims 1 and 13 include a heater (or an element that produces heat), which is an element outside of the scope of the claims. Specifically, using "consisting of" excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520; *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("consisting of" defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith."). Therefore, the rejections of claims 1 and 13 using the aforementioned references having heaters are improper and should be withdrawn.

Further, the applied references do not disclose or suggest a volatile liquid having an evaporation rate between about $5.0 \times 10^{-9}$ and about $10.0 \times 10^{-8}$ meters per second measured with about 30% of the volatile liquid remaining at room temperature, as measured and calculated by drop shape analysis, as recited in claims 1 and 13. As noted herein, the evaporation rates disclosed in the applied references were based on volatiles that had been heated by a heater, an element outside the scope of the claims. Still further, none of the applied references disclose the use of the drop shape analysis method to select volatiles having the claimed evaporation rate. For at least these additional reasons, the rejections of claims 1 and 13 are improper and should be withdrawn.

New claim 49 recites a refill comprising a container comprising an aperture and a preselected volume of volatile liquid disposed in the container. The volatile liquid has a plurality of components and is preselected based on a predetermined evaporation profile including at least two evaporation rates as measured and calculated by drop shape analysis, the first evaporation rate calculated at a first time and a second evaporation rate calculated at a second time. The evaporation rate at each time is calculated using an equation wherein the evaporation rate at a time t = 2(volume at $t_2$ – volume at $t_1$) / (surface area at $t_2$ + surface area at time $t_1$), where time $t = (t_1 + t_2)/2$.

New claim 61 recites a refill comprising a container and a volatile liquid carried by the container. The volatile liquid has an evaporation rate, wherein the volatile liquid is preselected based on an evaporation rate that is calculated using an equation, wherein the evaporation rate at a time t = 2(volume at $t_2$ – volume at $t_1$) / (surface area at $t_2$ + surface area at time $t_1$), where time t = ($t_1$ +$t_2$)/2. The evaporation rate is about 5.0 x $10^{-9}$ to about 10.0 x $10^{-8}$ meters per second measured with about 30% of the volatile liquid remaining at room temperature, as measured and calculated by drop shape analysis. The refill further includes a wick disposed in the aperture. The wick is in fluid communication with the volatile liquid and the surrounding environment, and the volatile liquid has a relative evaporation rate between about 0.50 and about 4.0.

New claims 49 and 61, and claims 50-60 and 62-72 dependent thereon, respectively, require a volatile material that is preselected based on an evaporation rate as measured and calculated by drop shape analysis that is calculated using an equation, wherein the evaporation rate at a time t = 2(volume at $t_2$ – volume at $t_1$) / (surface area at $t_2$ + surface area at time $t_1$), where time t = ($t_1$ +$t_2$)/2. The Office action alleges that it would be obvious to one of ordinary skill in the art to "choose or compose a volatile liquid having a desired evaporation rate" and "to determine the optimum evaporation rate calculation method by routine experimentation." O.A. pgs. 6 and 7. Applicants traverse this reasoning because the measurement and calculation by drop shape analysis using the formula recited in claims 49 and 61 is not utilized to determine an optimum evaporation rate, but rather is used to accurately predict evaporation rates of a volatile mixture using a heretofore unknown method and thereby select the volatile active. In prior art methods, a volume of volatile material underwent testing over a substantial amount of time to determine evaporation rates of the volume of the volatile material in order to determine a desired volume and evaporation profile to last a desired time period. Thereafter, the volume and volatile materials were selected based on the results that from the testing. Such testing methods require a long time to complete because each combination of volume and volatile active had to be tested for essentially the entire life span of a given volume. In contrast, volumes of volatile active selected using the method and equation presented in claims 49 and 61 allows a user to predict evaporation rates of larger volumes using drop shape analysis, which significantly shortens the required time to test a particular volatile active by allowing accurate predictive forecasting of suitability. Using the drop shape analysis measuring

technique and recited formula, the appropriate volatiles can be selected based upon their evaporation rates and evaporation profile without having to test a complete volume of volatile active to find out how long it will last. Thus, selecting a volatile active using the drop shape analysis, and corresponding equation, significantly shortens testing time for finding a suitable combination of volatile active and volume. The cited references do not disclose or suggest a refill having a volume of volatile liquid that has been selected based on the drop shape analysis method and calculation using the equation presented in claims 49 and 61.

Instead, Triplett discloses an air freshening system that changes the wick material and positions to affect volatilization of the liquid substance. Gillett discloses a device for emitting a chemical agent. Levine discloses a method and device for controlling the vaporization of a volatile substance by controlling the operational temperature of a heating element disposed within the device. Demarest discloses an environmental control apparatus that releases a volatile active. All of the applied references utilize heating, fans, or other methods to achieve the desired evaporation rate of the volatile substance and do not address choosing a volatile active, let alone a volatile active based on a predetermined evaporation profile utilizing the method and equation presented in claims 49 and 61. Therefore, claims 49 and 61 are not obvious over the previously applied references and are in position for immediate allowance, notice of which is respectfully requested.

All of the pending rejections having been fully addressed herein, withdrawal of the rejections and allowance of the application are requested.

Respectfully submitted,
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